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ABSTRACT

Instruction that engages students and gets them to use their minds well is referred to in this document as "authentic instruction." To assist in the articulation of a vision, the Center on Organization and Restructuring of Schools has proposed criteria for authentic instruction, which consists of the following five dimensions: higher order thinking, depth of knowledge, connectedness to the external world, substantive conversation, and social support for student achievement. The first article offers examples of two teachers who illustrate aspects of authentic instruction. A social-studies teacher emphasizes coaching in a socratic seminar, and a mathematics teacher models mathematical thinking. The second article describes in detail a framework, based on the five dimensions of authentic instruction, for observing instruction. The last article, an interview with a middle-school principal involved in school restructuring, offers views on how to support authentic instruction. (LMI)

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Issues in restructuring schools

Crafting Authentic Instruction

Remember your favorite classes? What made them so good? It didn't matter what subject was taught or what grade we were in. What mattered were the experiences that made us believe we could "get it" and do good work. We were challenged, provoked. We developed our own ideas and found words to express them. We grasped the standards and managed to reach them.

Instruction which engages students most of the time and gets them to use their minds well is still the key to student learning. The Center on Organization and Restructuring of Schools calls this "authentic instruction." The concept, described in the research article (page 3), consists of five dimensions: 1) higher order thinking, 2) depth of knowledge, 3) connectedness to the world beyond the classroom, 4) substantive conversation, and 5) social support for student achievement.

Why these five dimensions? At this point there is no conclusive evidence that instruction which consistently meets these criteria will produce high quality achievement from all students in all subjects. However, these dimensions represent a synthesis of ideas proposed by experienced educators and documented in various studies.

Does authentic instruction differ from old fashioned, good teaching? Maybe it doesn't. However, at the Center, we predict that if school restructuring is aimed to support authentic instruction, the payoff will be enhanced academic achievement, that is, students using their minds well, both in school and out.

This article illustrates examples of authentic instruction in action today. It shows students being intellectually challenged in a supportive atmosphere. The two classes show how the five dimensions are revealed in the teaching of a high school social studies and a middle school math teacher.

Coaching the Socratic Seminar

John McDermott entered teaching through the back door of sports. A scholarship athlete and history major, his ambition was to coach, teaching would be a side line. Twenty years later, after the fates ruled out basketball, a wiry, amiable, and high energy McDermott finds himself a coach after all—in the classroom, not on the courts.

The casual start to a mid-March seminar class, at Horizon High School in Thornton, Colorado, on the relationship between Dickens' *Tale of Two Cities*, Hugo's *Les Miserables* and the French Revolution seems to belie a perceptible undercurrent of enthusiasm. As students make a circle of chairs, "Mr. McDee" asks for standards. Responses from three students come quickly:

- Monica: "*Make your arguments logically and not from a personal standpoint.*"
- Jen R.: "*Don't judge a person, judge their ideas.*"
- Shannon: "*Be respectful. Don't interrupt.*"

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DIRECTOR'S OVERVIEW

School restructuring can involve lots of changes: school site councils, teaching teams, more heterogeneous grouping of students, special support services for students, interdisciplinary curriculum, changes in the schedule. These changes make new demands on teachers, administrators, students, and parents. They call for new commitments, new competencies, and patient perseverence in conflict resolution. But do any of these changes improve instruction? What does it mean to "improve" instruction? What confidence should we have that the arduous struggle to restructure schools will actually enhance student learning?

If we want new structures of education to promote improved instruction and learning, we must first make explicit a desired vision or conception of teaching and learning. Unless school restructuring is guided by and focused on visions of student achievement and of instruction needed to produce that achievement, what's the point of restructuring at all?

To assist in the articulation of a vision, the Center on Organization and Restructuring of Schools has proposed criteria for authentic instruction, described in the research article (p. 3). The first article offers examples of two teachers who illustrate aspects of authentic instruction. A social studies teacher emphasizes coaching in a socratic seminar, and a mathematics teacher models mathematical thinking. The teachers observed and interviewed here illustrate in their practice and their explanations of teaching an emphasis on many of the five dimensions. We leave it to the reader to consider which of the dimensions seem most prominent. Finally, we interview a principal involved in school restructuring to see how he supports authentic instruction. We hope this material will help to focus discussion on what ought to be the ultimate targets of organizational innovation: instruction and student learning.

Fred M. Newmann, Director

Without missing a beat, McDermott asks Kizzy to start by making an observation about any of the four areas assigned with yesterday's readings. She compares Hugo's hero Jean Valjean and the indigent who steals bread to survive with Dickens' wretched villagers who drink spilled wine mixed with mud:

"The people were poor, they didn't have any money. It was hard to get water or wine, so whatever they could get they'd take."

Debbie develops the idea: *"It's like a metaphor. Because later on blood will be spilled on that street. But I think they are going after the wine so passionately because the people don't have anything to lose, and they are going into the revolution with everything they've got."*

The hour-and-a-half, World Affairs and World Literature class of 70 juniors and seniors is team-taught by a social studies and an English teacher, and is not an advanced placement course. It enrolls students from all achievement levels: learning disabled, emotionally troubled, youth in trouble with the law, and 14- and 15-year-old moms whose babies play at the school's child-care center.

McDermott, who holds a master's degree in gifted and talented education, fought vigorously against tracking when he and a small group of educators developed curriculum for Horizon; he believes Horizon's mission is to offer a gifted and talented program to every student. Designed to be a "restructured" school, Horizon High enrolls about 1,500 students, 18% minority, and boasts innovations such as: block-scheduling, integrated curriculum, site-based decision-making, advanced computer technology, a work-study program for at-risk youths.

The class discussed here has been split into two groups of 35. McDermott's philosophy of coaching is central to the way he supports student conversation. Each fall, McDermott devotes two weeks in every class to "getting-to-know-you" activities. Colleagues at other schools have chided him for game playing with high schoolers, but during those weeks McDermott establishes his bottom line—respect for one another.

Seminar class embodies McDermott's critical principles of teaching: teenagers speaking respectfully, doing homework responsibly, entering class prepared to contribute. From McDermott's point of view, depth of knowledge is gained through serious attention to homework, library research, reading current articles, and good books. "They have to have depth before they can reach higher order thinking. The homework prepares them, gives them good stuff to chew on, like a good meal. Then you can sit back, go into the living room and get dessert, that's the seminar."

Doing homework is no more popular among students at Horizon than anywhere else. Says McDermott: "These kids say, 'We don't do homework.' " And I say, 'You are not going to pass unless you do.' And they understand and say, 'I'm not doing homework, and I know I'm going to fail.' " Yet his expectation remains.

In class, the conversation moves on to the metaphor of society grinding young people old like a millstone. At least 30 of 35 students participate actively. A sampling of the dialogue follows:

First McDermott asks: ***What is the millstone in this section?***

Shannon: *Hunger.*

McD: ***Yes, excellent. Hunger. And who is getting ground down by this millstone.***

Kelly: *Society.*

Jason: *The lower class.*

McD: ***The lower class, the poor people. They are being ground down until there is nothing left. Dickens talks about another millstone. What does he mean when he says this "And certainly not in the fabulous mill which ground old people young. No, this is the mill that grinds young people old."***

Dana: He's talking about the atrophy of childhood that Hugo talks about. These children aren't able to go out and play or whatever because they have to go out and work, and they grow up too fast.

McD: ***It grinds young people old, they never get a childhood.***

Students continue to speculate that

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Standards of Authentic Instruction

By Fred M. Newmann and Gary G. Wehlage

The Problem: Innovation Without Authenticity

Why do many proposed innovations fail to improve the quality of instruction or student achievement? In 1990, we began to explore this question by studying schools that have tried to restructure.

Unfortunately, even the most innovative activities—from school councils and shared decision-making to cooperative learning and assessment by portfolio—can be implemented in ways that undermine meaningful learning, unless they are guided by substantive, worthwhile educational ends. We contend that innovations should aim toward a vision of *authentic* student achievement, and we are examining the extent to which instruction in restructured schools is directed toward authentic forms of student achievement. We use the word authentic, to distinguish between achievement that is significant and meaningful and that which is trivial and useless.

To define authentic achievement more precisely, we rely on three criteria that are consistent with major proposals in the restructuring movement:[1] (1) students construct meaning and produce knowledge (vs reproducing declarative knowledge and algorithms); (2) students use disciplined inquiry to construct meaning; and (3) students aim their work toward production of discourse, products, and performances that have value or meaning beyond success in school.[2]

In studying schools that have tried to restructure, we decided to inquire about the extent to which instruction in these schools was aimed toward authentic forms of student achievement. We present here a framework for observing instruction derived from the vision of authentic achievement. The framework was created as a research tool, but it can also be used to help teachers examine the authenticity of their instructional activities.

This article was first published in *Educational Leadership*, 50(7), 8-12, April, 1993.

The Need for Standards for Instruction

While there has been much recent attention to standards for curriculum and standards for assessment, public and professional discussion of standards for instruction tends to focus on procedural and technical aspects, with little attention to more fundamental standards of quality.[3] Is achievement more likely to be authentic when the length of class periods varies, when teachers teach in teams, when students participate in hands-on activities, or when students spend time in cooperative groups, museums, or on-the-job apprenticeships?

We were cautious not to assume that technical processes or specific sites for learning, however innovative, necessarily produce experiences of high intellectual quality. Even activities that place students in the role of a more active, cooperative learner, and that seem to respect student voices can be implemented in ways that do not produce authentic achievement. The challenge is not simply to adopt innovative teaching techniques or to find new locations for learning, but deliberately to counteract two persistent maladies that make conventional schooling inauthentic:

1. Often the work students do does not allow them to use their minds well.
2. The work has no intrinsic meaning or value to students beyond achieving success in the school.

To face these problems head-on, we articulated standards for instruction that maximized the quality of intellectual work, but were not tied to any specific learning activity (e.g. lecture or small group discussion). Indeed, the point was to assess the extent to which any given activity—traditional or innovative, in or out of school—engages students in using their minds well.

The Five Standards of Authentic Instruction

Instruction is complex, and quantification in education can often be as misleading as informative. To guard against oversimplification, we formulated several standards, rather than only one or two, and we conceptualized each standard as a continuous construct from "less" to "more" of a quality, rather than as a categorical (yes or no) variable.

We expressed each standard as a dimensional construct on a five-point scale. Instructions for rating lessons include specific criteria for each score—1 to 5—on each standard. Space does not permit us to present criteria for every possible rating, but for each standard we first distinguish between high and low scoring lessons and then offer examples of criteria for some specific ratings. Raters consider both the number of students to which the criteria applies and the proportion of class time during which it applies.[4] The five standards are: higher order thinking, depth of knowledge, connectedness to the world beyond the classroom, substantive conversation, and social support for student achievement (see figure 1).

Higher-Order Thinking

The first scale measures the degree to which students use higher-order thinking.

Lower order thinking (LOT) occurs when students are asked to receive or recite factual information or to

Figure 1

STANDARDS OF AUTHENTIC INSTRUCTION

1. Higher-Order Thinking

lower-order thinking only 1...2...3...4...5 higher-order thinking is central

2. Depth of Knowledge

knowledge is shallow 1...2...3...4...5 knowledge is deep

3. Connectedness to the World

no connection 1...2...3...4...5 connected

4. Substantive Conversation

no substantive conversation 1...2...3...4...5 high-level substantive conversation

5. Social Support for Student Achievement

negative social support 1...2...3...4...5 positive social support

employ rules and algorithms through repetitive routines. As information receivers, students are given pre-specified knowledge ranging from simple facts and information to more complex concepts. Students are in this role when they are reciting previously acquired knowledge by responding to questions that require recall of pre-specified knowledge.

Higher order thinking (HOT) requires students to manipulate information and ideas in ways that transform their meaning and implications, such as when students combine facts and ideas in order to synthesize, generalize, explain, hypothesize, or arrive at some conclusion or interpretation. Manipulating information and ideas through these processes allows students to solve problems and discover new (for them) meanings and understandings. When students engage in HOT, an element of uncertainty is introduced and instructional outcomes are not always predictable.

Illustrative criteria for higher-order thinking

3= Students primarily engaged in routine LOT operations a good share of the lesson. There is at least one significant question or activity in which some students perform some HOT operations.

4= Students engaged in an at least one major activity during the lesson in which they perform HOT operations, and this activity occupies a substantial portion of the lesson and many students perform HOT.

Depth of Knowledge

From "knowledge is shallow" (1) to "knowledge is deep" (5), the next scale assesses students' depth of knowledge and understanding. This term refers to the substantive character of the ideas in a lesson and to the level of understanding that students demonstrate as they consider these ideas.

Knowledge is thin or superficial when it does not deal with significant concepts or central ideas of a topic or discipline—for example, when students have a trivial understanding of important concepts or when they have only a surface acquaintance with their meaning. Superficiality can be due, in part, to instructional strategies that emphasize coverage of large quantities of fragmented information.

Knowledge is deep or thick when it concerns the central, crucial ideas of a topic or discipline. For students, knowledge is deep when they make clear distinctions, develop arguments, solve problems, construct explanations, and otherwise work with relatively complex understandings. Depth is produced, in part, by covering fewer topics in systematic and connected ways.

Illustrative criteria for depth of knowledge:

2= Knowledge remains superficial and fragmented; while some key concepts and ideas are mentioned or covered, only a superficial acquaintance or trivialized understanding of these complex ideas is evident.

3= Knowledge is treated unevenly during instruction; i.e. deep understanding of something is countered by superficial understanding of other ideas. At least one significant idea may be presented in depth and its significance grasped, but in general the focus is not sustained.

Connectedness to the World Beyond the Classroom

The third scale measures the extent to which the class has value and meaning beyond the instructional context. In a class with little or no value beyond, activities are deemed important for success only in school (now or later). Students' work has no impact on others and serves only to certify their level of competence or compliance with the norms and routines of formal schooling.

A lesson gains in authenticity the more there is a connection to the larger social context within which students live. Instruction can exhibit some degree of connectedness when (1) students address real world public problems (for example, clarifying a contemporary issue by applying statistical analysis in a report to the city council on the homeless); or (2) students use personal experiences as a context for applying knowledge (such as using conflict resolution techniques in their own school).

Illustrative criteria for connectedness:

1= Lesson topic and activities have no clear connection to issues or experience beyond the classroom. The teacher offers no justification for the work beyond the need to perform well in class.

5= Students work on a problem or issue that the teacher and students see as connected to their personal experiences or contemporary public situations. They explore these connections in ways that create personal meaning. Students are involved in an effort to influence an audience beyond their classroom; for example, by communicating knowledge to others, advocating solutions to social problems, providing assistance to people, creating performances or products with utilitarian or aesthetic value.

Substantive Conversation

The fourth scale assesses the extent of talking to learn and understand the substance of a subject. In classes with little or no substantive conversation, teacher-student interaction typically consists of a lecture with recitation in which the teacher deviates very little from delivering a preplanned body of information and set of questions; students routinely give very short answers. Teachers' list of questions, facts, and concepts tend to make the discourse choppy, rather than coherent; there is often little or no follow-up of student responses. Such discourse is the oral equivalent of fill-in-the-blank or short-answer study questions.

High levels of substantive conversation are indicated by three features:

1. There is considerable interaction about the ideas of a topic, that is, the talk is about disciplined subject matter and includes higher order thinking such as making distinctions, applying ideas, forming generalizations, raising questions, and not just reporting experiences, facts, definitions, or procedures.

2. Sharing of ideas is evident in exchanges that are not completely scripted or controlled, as in a teacher-led recitation. Sharing is best illustrated when participants explain themselves or ask questions in complete sentences and when they respond directly to comments of previous speakers.

3. The dialogue builds coherently on participants' ideas to promote improved collective understanding of a theme or topic.

Illustrative criteria for substantive conversation:

To score 2 or above, conversation must focus on subject matter as in feature (1) above.

2= Sharing (2) and/or coherent promotion of collective understanding (3) occurs briefly and involves at least one example of two consecutive interchanges.

4= All three features of substantive conversation occur, with at least one example of sustained conversation (that is, at least three consecutive interchanges), and many students participate.

. . . students may seem more engaged in activities such as cooperative learning or long-term projects, but heightened participation or engagement alone is not sufficient.

Social Support for Student Achievement

Social support involves high expectations, respect, and inclusion of all students in the learning process. Social support is low when teacher or student behavior, comments, and actions tend to discourage effort, participation, or willingness to express one's views. Support can also be low if no overt acts like the above occur, but when the overall atmosphere of the class is negative as a result of previous behavior. Token acknowledgements, even praise, by the teacher of student actions or responses do not necessarily constitute evidence of social support.

Social support is high in classes when the teacher conveys high expectations for all students, including that it is necessary to take risks and try hard to master challenging academic work, that all members of the class can learn important knowledge and skills, and that a climate of mutual respect among all members of the class contributes to achievement by all. "Mutual respect" means that students with less skill or proficiency in a subject are treated in ways that encourage their efforts and value their contributions.

Illustrative criteria for social support:

2= Social support is mixed. Both negative and positive behaviors or comments are observed.

5= Social support is strong; the class is characterized by high expectations, challenging work, strong effort, mutual respect and assistance in achievement for almost all students. Both teacher and students demonstrate a number of these attitudes by soliciting and welcoming contributions from all students. Broad student participation may indicate that low-achieving students receive social support for learning.

Using the Framework

We are now using the standards to estimate levels of authentic instruction in social studies and mathematics in 24 elementary, middle, and high schools which have restructured in various ways. The purpose of our research is not to evaluate schools or teachers, but to learn how authentic instruction and student achievement are facilitated or impeded by:

- ✔ organizational features of schools (teacher workload, scheduling of instruction, governance structure);
- ✔ the content of particular programs aimed at curriculum, assessment, or staff development;
- ✔ the quality of school leadership;
- ✔ school and community culture.

We also examine how actions of districts, states, and regional or national reform projects influence instruction. The findings will describe the conditions under which "restructuring" improves education for students and suggest implications for policy and practice.

Apart from its value as a research tool, the framework should help teachers to reflect upon their teaching. The framework provides a set of standards or criteria through which to view assignments, instructional activities, and the dialogue between teacher and students and students with one another. Teachers, either alone or with peers, can use the framework to generate questions, clarify goals, and critique their teaching. For example, students may seem more engaged in activities such as cooperative learning or long-term projects, but heightened participation or engagement alone is not sufficient. The standards provide

further criteria for examining the extent to which such activities actually put students' minds to work on authentic questions.

In using the framework, either for reflective critiques of teaching or for research, it is important to recognize its limitations. First, the framework does not try to capture in an exhaustive way all that teachers may be trying to accomplish with students. The standards attempt only to represent in a quantitative sense the degree of authentic instruction observed within discrete class periods. Numerical ratings alone cannot portray how lessons relate to one another or how multiple lessons might accumulate into experiences more complex than the sum of individual lessons. Second, the relative importance of the different standards remains open for discussion. Each suggests a distinct ideal or standard, but it is probably not possible for most teachers to show high performance on all standards in most of their lessons. Instead, it may be important to ask, "Which standards should receive higher priority and under what circumstances?"[5]

Finally, although previous research indicates that teaching for thinking, problem-solving, and understanding often has more positive effects on student achievement than traditional teaching, the effects of this specific framework for authentic instruction on student achievement have not been examined.[6] Many educators insist that there are appropriate times for traditional, less authentic instruction—emphasizing memorization, repetitive practice, silent study without conversation, and brief exposure—as well as teaching for in-depth understanding.

Rather than choosing rigidly and exclusively between traditional and authentic forms of instruction, it seems more reasonable to focus on how to move instruction toward more authentic accomplishments for students. Without promising to resolve all the dilemmas faced by thoughtful teachers, we hope the standards will offer some help in this venture.

[1] See Carnegie Corporation of New York (1989), Elmore & Associates (1990), and Murphy (1991).

[2] See Archbald and Newmann 1988, Newmann 1991, Newmann and Archbald 1992, Newmann et al 1992, and Wehlage et al. 1989.

[3] For example, see the arguments for standards in National Council on Education Standards and Testing (1992), and Smith & O'Day (1991).

[4] In three semesters of data collection, correlations between raters were .7 or higher, and precise agreement between raters was about 60% or higher for each of the standards. A detailed scoring manual will be available to the public following completion of data collection in 1994.

[5] The standards may be conceptually distinct, but initial findings indicate that they cluster together statistically as a single construct. That is, lessons rated high or low on some dimensions tend to be rated in the same direction on others.

[6] Evidence for positive achievement effects of teaching for thinking is provided in diverse sources such as Brown & Palinscar (1989), Carpenter & Fennema (1992), Knapp, Shields, & Turnbull (1992), and Resnick (1987). However, no significant body of research to date has clarified key dimensions of instruction that produce authentic forms of student achievement as defined here.

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McDermott confers with students

the mill of the wealthy grinds the old young since they "get to play all the time."

McD: **You know I'm learning with you because I don't honestly know what he meant by that. Well, if you are old and have enough money, you can play all the time. What would it be like in our society? Relate it to today.**

Kristine: Ross Perot.

McD: **Why can Ross Perot be an old person ground young.**

John: Because he can get anything he wants. He has so much money.

A number of students argue that luxury isn't at all bad. McDermott doesn't challenge the comments, but maneuvers the conversation back on track: **How does that wine casque section and this section tie in with the revolution?**

Dana: Things get bottled up, and after a while they start decaying, and after a while people start becoming scavengers.

Dan: They are made into savages by the times.

McDermott shifts focus:

Kristen, any examples of this in today's society? Kristen discusses the riots in Los Angeles in some detail.

Developing a connection with current events, helping students personalize their studies and relate them to their lives outside of school is a task McDermott says he works on in every class.

Stacey: These problems happened then, a long time ago, and they are happening now. When the rich were getting richer and the poor were getting poorer, and things are happening now as they were in that day. And I think the government is a big blame.

Jason: The government can't do anything without the people though.

Melanie: And I think that actually poor people can see it more than all the others.

McD: **Let me just point something out to you. What time period is this happening?**

Monica: About 1780 at the beginning of the book.

McD: **Les Miz. What time period?**

Brian G.: 1820's, 30's.

McD: **What's he describing there?**

Chandra: Isn't he describing the poverty and the throw away kids?

McD: **We go from this time to 50 years later, and what's happening?**

Students: The same thing.

One Student's View

Q: How do you like the combination of the two subjects.

Brian: *I think I like it. I think these integrated classes are a lot more challenging than my old classes. Because you have to learn how to connect one class to another, and a lot of times you don't see any connection at all. Like in my Core class in 10th grade, they would make us connect science and history and English. There are a lot more connections this year in history and literature. But I think it's good. It keeps you focused on what's all happening at what times in history. That's what's good, all those connections.*

Q: By good do you mean you feel satisfied with your learning after you're hit with the challenges of connections?

Brian: *I feel that a lot with this class. They make you write reports and essays and after that I feel that I really did learn something. And especially if I can say it all in an essay. And usually I can. So I think I really do learn a lot from this. Core is about the same way.*

Q: You feel good, like . . .

Brian: *Like accomplishment.*

Q: Does it make you feel that when you approach something else new you have different skills that you might not have had. Like abstraction skills, analysis skills?

Brian: *Oh definitely. Like connections, I can make connections a lot easier, a lot better. Even my essay skills are a lot better. Just because we've done it so many times. Well, you know how it's hard sometimes people to learn history and time lines. Well, I've learned how to do that now. If you learn when this book is written and all the events that happened during that time, and how these people are thinking, it's just easier to remember dates and times that things happen.*

Q: You feel the information sticks with you?

Brian: *Yeah. Absolutely. You aren't going to learn everything that they say. But most of it I think I still retain. It's a challenging class. The most challenging class that I have this year.*

Q: More homework?

Brian: *Not necessarily more homework, but a lot of reading. It just really makes you think. My other classes, they give me the work and I just do it, but this class you've got to think.*

Brian Guerin, 12th grade student at Horizon.

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McD: **We come to 1993 in LA, and what's happening?**

Students: *The same thing.*

Jeanine: *It's all different governments. We have a democracy and like the Soviet Union style, and all this is different governments.*

McD: **So where is the message in all this? This is wonderful.**

Students: *I don't know.*

McD: **I don't blame you for saying I don't know, but I want us all to think. What's the message? What is going on when we see the same things in different governments?**

Roger: *Governments have different. . .*

Jen R.: *That it's the people. That it's not the government, that no matter what government it always happens.*

Natalie: *But the people are the government.*

Stacey: *And these people that are scavenging for the wine, before maybe these people had pride, and wouldn't drink wine off the street. But they've been pushed to a point where they'll just do anything. And that's when the people revolted. They just wanted the revolution right then.*

Brian A.: *It's just that people are forced in certain ways, in society they aren't forced to drink the wine, but they are forced to live that life.*

McD: **You know the three of you are bringing up some very hot issues that are discussed all the time in society, that I think Hugo and Dickens have certain opinions about. But it's interesting today how many people would disagree with what you just said. You are blaming society for poverty. And there are many people in society who blame the people for poverty.**

Chandra: *There is only so much hunger they take, only so much blood they can take before they are going to take it out on the government in revenge. Because the government is the rich people and the ones that are getting richer. So they are going to take from the rich what the rich are taking from the poor.*

Becky: *It's human nature for people to rebel if they are forced to live in conditions that are inhumane. It's human nature, and there is nothing any government can do about it. No government anywhere ever has or probably ever will last forever. You should expect change; you should expect revolution from society at some point.*

McDermott's seminar class

Jen B.: *Didn't Thomas Paine think revolution was good?*

Dana: *Isn't that like the Greeks, and three destinies will always continue to happen and cause people to think.*

With his rakish smile, McDermott interjects: **And that's exactly why they are called classics. You read them because they apply and they cause you to think. What you are doing right now is far beyond just learning about a government, learning about a revolution. You are trying to analyze why these things happen. And that approaches the philosophical realm. Now if what everyone is saying is true, does that mean people like Rousseau, Voltaire, Montesquieu, and those who wanted to create this perfect society are fools?**

Monica: *I don't think they are fools. I think everyone wants to have a real good life.*

Mike: *I don't know if you can have a society where everyone is rich.*

Brian G.: *I just was thinking that one view is like a capitalist view: whatever people make they should be able to keep, that however hard they work that's how much they get.*

Kristine: *Every man for himself.*

Brian G.: *Yeah. And the other view would be the socialist view where everyone is working together to get salary. And everybody receives the same thing whether this person worked harder than this person who was lazy. They both would get the same thing.*

Class is almost out of time. McDermott petitions: **Somebody talk about Charles Dickens before we walk out.**

Wade: *He saw the government as being the problem. And he saw the government as being why the people were hungry and poverty stricken.*

Stacey: *And he's bad on run-on sentences.*

Conversation excerpted here, which used literature to understand not only revolution and other issues pertinent to the relationship of government to people, occurred virtually without pause for a full 45 minutes.

McDermott believes the heterogeneous mix of students enhances the discussion. Maybe some aren't reading or understanding every single word. "But after we do a discussion like today, they are getting the idea. And personally, it doesn't matter to me if they read every single word. They are sitting, intellectualizing, and discussing. They are exposed to a classic."

Research in the library

As effortless as this class may appear, transforming his teaching to sustain a student-centered discussion required years of retraining and staff development for McDermott. Stunned some years back when a principal suggested that his teaching style was too teacher-directed, McDermott began rethinking teaching. He discovered "wait time." He found the patience to let students struggle in silence without bailing them out. Still, after twenty years, his major classroom challenge is to make material interesting.

Horizon cultivates collegial help among teachers. They plan, team teach, and evaluate one another. And, each teacher in the school has a desk and cubby in an airy, centrally located room, a staff office center, where adult conversations on pedagogy take place continually.

"We're stealing ideas all the time. In that open office people will say: 'What did you do? Tell us about that!' And we say: 'Wait, we're doing the Civil War unit. Give me that!' It's like a whole staff development course. You don't end up doing the same thing twice here—ever."

McDermott crafts his classes to support sustained conversation and higher order thinking. Should the public still require scores from standardized test scores as proof that students are learning? McDermott contends that the improvement in essays, the connections they make between subjects, and the enhanced thinking skills are all the evidence he needs.

"There is a process of integrating their ideas and coming up with a product. And the product is writing a short essay or poem, or drawings, or paintings, or plays, or presentations, or speeches, or whatever we ask them to do. I am concentrating on process, on how they think and how they put things together rather than how many facts they know. However, I do believe that giving the students challenging content is the essential first step.

"The goal of seminar isn't that they come out with one piece of learning, because all of them are going to come out with different pieces of learning. That's my interpretation of the Socratic method. They decide the truth."

Modeling Mathematical Thinking

The banner across the back wall—"Mathematics: Don't leave school without it!"—stands boldly among posters, signs, and photos decorating the evergreen chalkboard and pale green walls of Audrey Manning's classroom at Roosevelt Middle School. It's drizzling on the sprawling 1950's brick and shingle building in Eugene, Oregon, but the clear, resonant alto voice of the teacher draws attention.

Manning, a tall, poised leader with stolid grace distributes baggies filled with toothpicks to a pre-algebra class of sixth, seventh, and eighth grade students arranged in tables of four. She hasn't counted them exactly and asks her pupils to borrow from another group if they run out. Her warmth and easygoing style offset the rigorous thinking she is about to demand.

"What I'd like you to do is make some squares using your toothpicks. I'm going to show you what I mean," she says flicking on the overhead projector and sketching a series of five connected squares.

"The idea is to work in pairs." The buzz of students regrouping themselves and being sidetracked by toothpick pursuits ensues. Some reinvent pick-up-sticks; some stack them in piles; others test their durability.

"Other than counting, determine another way to figure out the number of toothpicks in those five squares. Everybody take a moment and think privately about how you might do that. If you come up with one way of doing that, think of another. Don't verbalize at this point please," she cautions in a soft mantra-like voice.

A gentle quiet falls as students work to recreate toothpick squares. After a moment students are invited "to share." Carey offers a thought, then goes to the overhead to sketch her visual motif.

Carey (seated): *I did threes. There were five of them, and then one extra.*

Manning asks: ***Can you show us how you are seeing that Carey?***

Carey, drawing large-scale C's, cups the top, side, and bottom of the square: *3, 3, 3, and 3, and 3 and then one.*

Manning summarizes: ***Okay, three times the number of squares, and then one. Is there a question as to how she did that? Do you understand? Does someone else have a different way to look at it.***

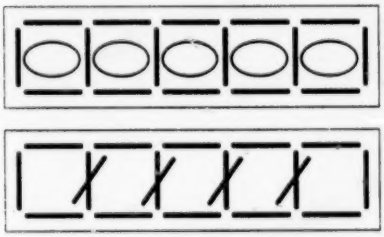
(Later in the class this formula is

developed: 3s + 1 = t, where "s" stands for sides, and "t" equals the number of toothpicks.)

Ryan: *You could also do it five times four, then subtract four.*

Manning: ***Can you show us how you are seeing that.***

Ryan circles the boxes, then crosses out the four inside lines: *Each of these (squares) could be considered four. Then you did four in the middle, then you minus four.*



A student questions exactly how he figured it out. He explains that the lines in the center are subtracted because they are counted twice.

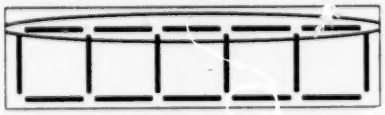
Manning summarizes again: ***So we have four times five. Is that what you did? And then you subtracted four that you counted twice.*** (Later this rule becomes: 4s - (s-1) = t.)

Manning: ***Anyone have another way? Lindsey?***

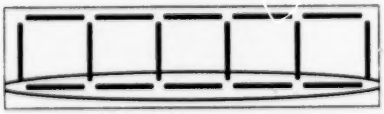
Lindsey: *What I did was I put 1, 2, 3, 4, 5 from the top, and then 1, 2, 3, 4, 5 from the bottom, that's five times two, plus 1, 2, 3, 4, 5, 6.*

Manning: ***Circle what you are talking about. Is everybody watching?***

Lindsey: *Here's the five...*

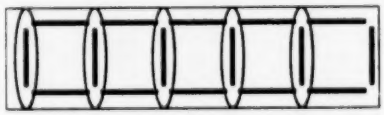


... and then five on the bottom, so that's five times two...



...and then you add in six. So that's five times two plus six. (The formula here is: 2s + (s + 1) = t.)

Manning clarifies a point during group work



They note that the number of toothpicks in the middle is always one more than the number of squares.

Manning: ***Who has another way that we look at it? Did everyone look at it in one of these three ways? Can you think of any other way that you might of counted those?***

No one answers.

That gives us a number of different methods to work with. Can you think about—without actually building these—can you think about expanding this to 12 squares? Can you, using one of those methods, maybe one you devised, can you predict what the total will be? Can somebody tell us how you are going to think about 12 squares even though you're not going to build it?

Seth explains: *I would have three times "x" which is the number of squares....*

Manning doesn't want to move to abstract variables yet; she interjects: ***We have 12, 12 squares.***

Seth: *...and then add the one, and then that would be like 37.*

David: *Even with one, can't you just multiply it—and you subtract one less.*

Seth: *But wouldn't you have to count the middle squares or something?*

David: *No. You want to know the number of squares for each one. So you could multiply it by three or by two or by four, which ever you chose.*

Manning: ***So how would you think about this using your method?***

Ryan: *Well using the method I demonstrated, it would be four times 12 minus 11.*

Manning: ***So he's counting them in fours. Then you subtracted. What relationship did you see? How did you know how many to subtract.***

Becky: *One less than the number of squares, because that's how many middle ones there are.*

Manning: ***How many middle ones there are?***

Seth: *Eleven, because those are used twice. So if there's four squares there's three in the middle, and three squares there's two in the middle, see?*

Erin: *You could look back at the sample and see that that works.*

Manning: ***Lindsey, what do you***

In class

think about that with your method?

Lindsey: *Well 12 times two that's how many are on the bottom and on top, and then one more than twelve, so 13 in the middle.*

Manning: ***So as this one goes on you'll have more squares. So she says that's 12 on the top, 12 on the bottom. And then say again how the other is?***

Lindsey: *One more than 12.*

Manning: ***So there are 13 in the middle.***

Her teaching strategy reflects a pattern: perceive, verbalize, illustrate, discuss, question, think again. Manning—just Audrey to her class—models mathematical thinking by carefully crafted questions that promote visualizing and talking through problems, scaffolding one step upon another.

Manning: ***We could extend that probably pretty easily then to 43 squares, 100 squares. So for 100 squares how many toothpicks would there be?***

Unison laughter: *A lot.*

Manning learned her visual approach to teaching at the Math Learning Center in Portland, for whom she now conducts staff development workshops. The approach embraces a constructivist philosophy of teaching and learning. Teachers use materials to nurture "discovery," asking students to build models, handle manipulatives, or examine sketches. Students devise their own, often different, rules.

"The emphasis is on, not getting a right answer, but how did you get that answer? How did you think about that? It's very important that they work through methods of finding a pattern on their own and describe it orally or in written form."

In this lesson, three solutions surfaced. By way of summary, Manning reiterates that all three methods were different but they all work, as she parcels out pens and pieces of acetate for the overhead.

Now each group must: ***Give a verbal explanation of how to determine the number of toothpicks no matter how many squares you have. What do you think I mean by verbal description?***

Joaquin: *Like explain it, rather than giving it in a formula.*

Manning: ***Right. Rather than giving a formula or symbolic language which we use a lot in mathematics, I'd like you to write it out in the English language.***

She repeats the explanation, and the assignment. Again the explanation; again the assignment. One student exclamation, "*Oh I understand*" is answered with, ***"Hang on let's make sure we understand."*** Again

Students talk after math class

Q: Can you tell me a little bit about this class and how Audrey approaches math?

Carey: Well it's a lot easier with her because she concentrates more on like your visual thinking instead of just "Tell me the answer." She helps you see what you're thinking. It's hard to get used to, but you understand it more.

Lindsey: Like she won't just say, "Are you correct?" If you get an answer wrong you can see where you messed up.

Carey: You always have to show your work.

Ryan: Last year my teacher was like, "Tell us the answer." Well, Audrey doesn't care if you get the answer right or wrong. She just cares about how our thinking was.

Q: So if you make a silly mistake you don't get major points taken off?

Carey: She doesn't take off the final grade, as long as your thinking is okay.

Lindsey: Well, if we show our work. But if we get the right answer, she marks us wrong if we don't show any work.

Q: How do you feel about working this way?

Carey: It's harder.

Lindsey and Ryan: She's a lot harder!

Carey: Well, not in the long run. But like I spend a half an hour longer on my homework, just writing out all the work when I could just, you know, do it.

Q: Is it worth it?

Carey: Yes. Definitely.

Ryan: Like if I make a mistake when I do a problem in my head, and I don't write it down . . .

Carey: . . . and if we want to know where we have our thinking wrong, and want to go back, this way I can relearn the concept I didn't understand. Now I can go back to where my thinking went wrong because the steps are all written down.

Three of Audrey Manning's students stayed after class

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the explanation. Again she urges students to explain their rule using words, and not to use math formulas yet: ***That is of course where we are headed, but would you just write it out now and we'll talk about it as a group.***

In a few minutes, Manning jingles a bell dangling from the overhead and invites children to bring their acetate explanations up front, read them aloud, and finally convert them to symbols. It's striking how freely students speak to their peers from the overhead projector.

The very process of explaining, making sense of a mathematical situation, means students have to think, says Manning. Central to her instructional philosophy is promoting higher order thinking.

" . . .combine facts and ideas in order to synthesize, generalize, explain, and hypothesize.' That is exactly what I ask them to do," she says reading the Center's description of higher order thinking. "Telling them just does not ensure that they have understanding, because real understanding comes from within each student."

Manning's shift from traditional math pedagogy came about more like a rude awakening than an epiphany. A few years ago, while teaching at University of Alaska and in public schools, she repeatedly saw college math majors as well as middle school math students "fail to understand what was going on. It doesn't make any difference what level they're at. The problem is still the same."

She sought a totally different approach, found this one, and was eager to test it when she was assigned a class of low-achieving eighth graders. These low achieving students discovered they could learn: "I saw real change in their interest level; they were impressed with their own abilities. When they were engaged, the discipline problems certainly lessened. . . . Having students verbalize or write about their thinking lets them see where they got stuck, and uncover their real understanding."

At the overhead, students write out and discuss various explanations, each group described the easiest pattern: 3x + 1 = the number of toothpicks.

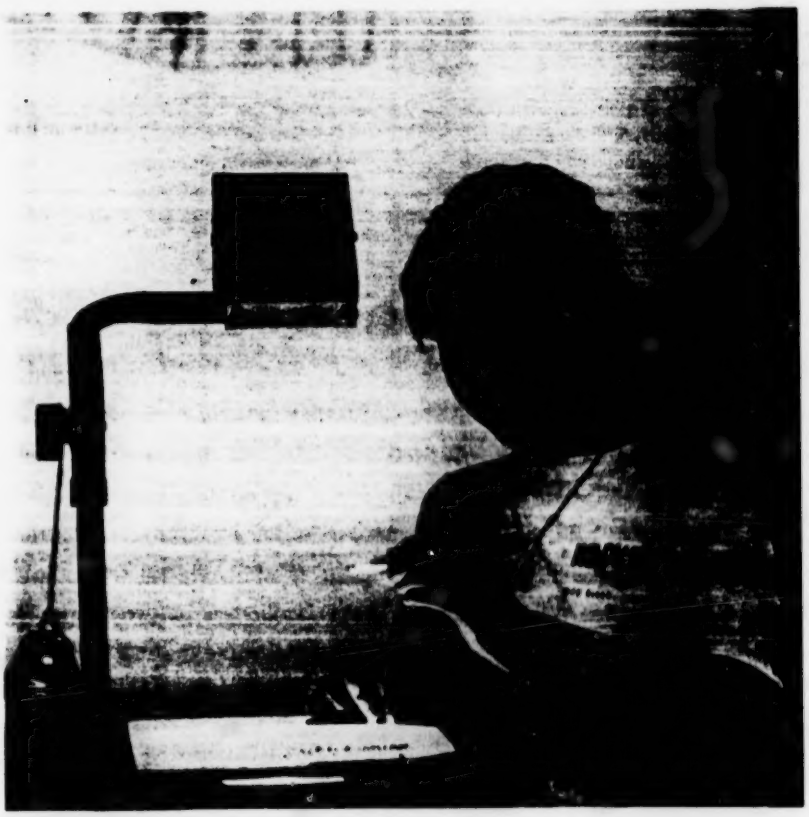
Joaquin comes forward to write: *"To determine the number of toothpicks in a given number of squares, you multiply the number of squares by three then add one."*

To facilitate extended inquiry like this, classes at Roosevelt meet three times a week, twice in 70 minute blocks. Longer class periods allow Manning to pursue her strategies more fully; it expedites the kind of discussion that holds student interest.

"Students listen more to each other than they do to me. They listen when they are interested. And they are interested in real questions, genuine questions, authentic questions if you will. I think a lot about the kind of question that I ask them. I rarely ask them answers to things that I already know. My job is to get the conversation started, and to facilitate it to some extent. But I would rather throw the ball back into their court, and ask some of the questions to get them to elaborate on their thinking as opposed to giving them answers."

Consequently, one sees a high degree of student-to-student interaction in Manning's classes. But supporting this kind of talk requires very deliberate strategies.

"I try very hard to provide a risk-free environment. I try to keep things flowing. No undue praise, no discouragement. I would never say: 'That's wrong.' When things are done incorrectly, you have to build an environment where you can disagree without putting one another down. I try to model that with the students, and most of them are pretty good. One reason I have groups of four is not just for working together, but so they can bounce ideas off each other and have a smaller group in which to be safe. And the groups change every 6 weeks so they have a variety of people they hear ideas from. That gives them as much interaction as possible."



Explaining a solution

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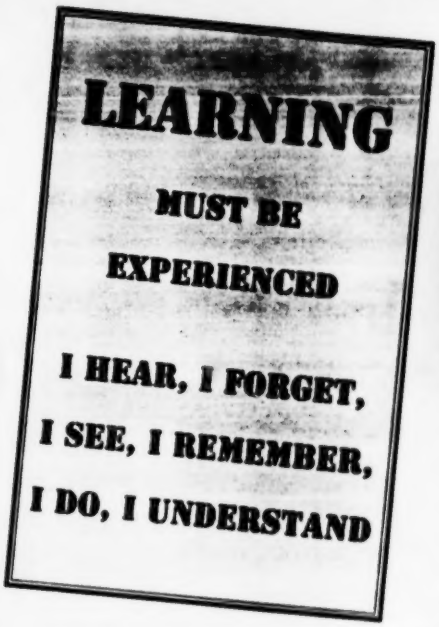


Finding a pattern

Integral to her strategy is the recognition that "wait time" is important, although it's a bear for teachers to do. Says Manning while wiping fingers smudged with overhead pen: "You think: Oh my gosh, the class is going to go crazy if I wait. But when I let that silence occur, they realize that I am giving them an opportunity to think."

Back in class, to the amazement of the students, all three explanations reduce to the original algorithm offered.

Manning: ***Does it make any difference which one we use if we are trying to figure out the number of toothpicks?***

No.

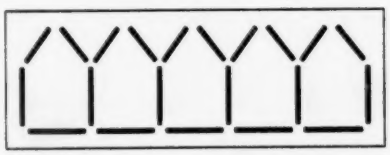
Absolutely not. Sometimes we spend a lot of time in algebra simplifying. And sometimes ask yourself why. I often ask myself why. But what if what you wrote makes perfect sense?

In algebra, we have a lot of different ways, formulas if you will, or algorithms, which is a rule. All of those words are synonymous for the formula that told how you were able to arrive at the number of toothpicks. Once you are able to describe what happened, was it fairly easy to write in symbol form? And now that you know where we got it from, you could probably redo this quite nicely all by yourself.

Then she presents a more challenging problem: pentagons.

Manning: ***I would like you to take a piece of paper out. I'm going to ask you to do this individually, but I don't mind if you discuss this in your groups a little bit.***

If you would create this figure using your toothpicks. This always brings back to mind something I used to draw, and probably you did too in elementary school.



Manning repeats a process used before. She tells them to get in touch with their own thinking first, then to verbally describe how many toothpicks in the five pentagons.

Let's call these pentagons, that's what they are although they look kind of like houses.

These will be collected so she can assess each child's progress in seeing the patterns.

How you would say it like you're talking on the telephone. I know you all talk on the telephone so that should be an easy thing to think about.

When the students come up to the overhead projector to share their ideas, they are hooked, interested in the material, and three different explanations come rapidly.

Audrey Manning says she is inspired by student growth:

"It's probably what keeps me teaching. Coming into the classroom, I can never do anything twice. It keeps it fun for me, and there is always something new for the students. If it takes three days longer than it should, then I feel they have learned a whole lot more and will retain it, than say covering chapters 1-13. We assume that if you cover chapters 1-13 you did it well, and the students all understand. But we know it doesn't work that way."

The pupils check the floor for toothpicks. One clever boy piles all of the broken bits under a hollow table leg so it looks like he cleaned up. His own private battle with authority.

The only corrective words come assertively: ***These toothpicks do cost me money. Please be considerate and pick up any that have dropped to the floor.***

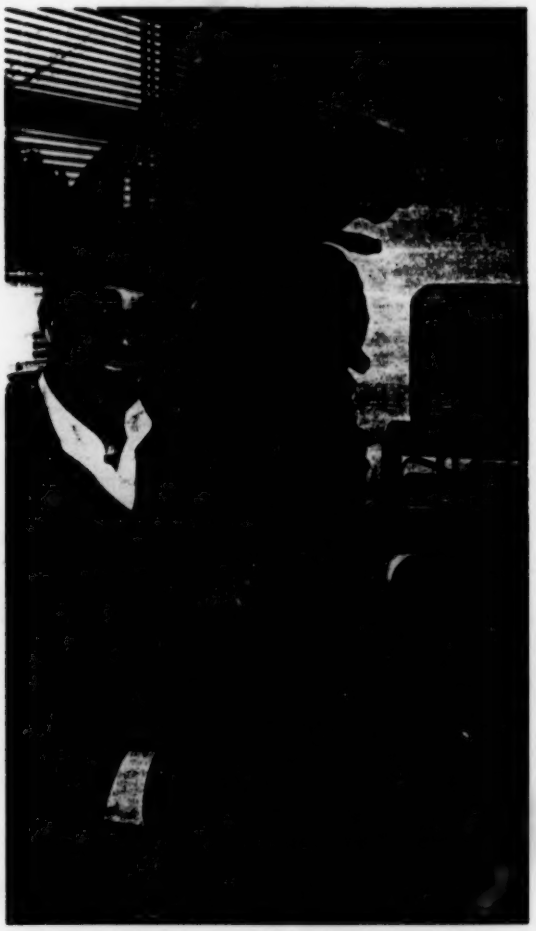
For Manning's class, as in McDermott's, students really listen to each other. Engaging in talk, they engage their thoughts, they use their minds well.

Not every class need emphasize all five dimensions for authentic instruction equally all the time. These two teachers frame their teaching strategies around the different priorities, yet over the course of any given week, these instructors strive for higher order thinking, depth of knowledge, supportive environment, connections to the world outside the classroom, and substantive conversation that will invest students to take ownership of their learning. Much like our "best" classes of yesterday.

by Karen Prager

Jim Slemp

Principal Roosevelt Middle School



Jim Slemp became a middle school principal by careful design. After 18 years as an educator—former elementary, middle, high school teacher, university professor, educational consultant, as well as principal—Slemp decided to devote his career to middle level education, middle school kids, and Roosevelt Middle School.

In the spring of 1988, when Slemp came to Roosevelt, he sought to build a collaborative model of education. The goal seemed natural since Slemp teaches "Team Building" and "Middle School Curriculum" at the University of Oregon.

"I see myself as a change facilitator, capitalizing on people's strength, focusing on vision, not problems. The key for me is to involve people in building trust and relationships. Community is real important to me—so is involving parents and kids. People see that I have trust and confidence that they will come up with the best decision."

Can you tell me what resources are needed to develop a professional community?

I believe that in any situation the resources are there and available. It's just a matter of a whole lot of hard work, energy, scrounging, begging, and cajoling to make them accessible for schools. Our first year was extremely low budget. We got a whole group together, they paid for their pizza dinner, we supplied the pop, went to my home, and used a parent from the community as facilitator and leader.

It's just a matter of figuring out different ways to find time. It all comes down to time: whether you pay people for time, buy them food, or move to a different setting. Anyone who uses resources as an excuse isn't playing fair. Once you take initiatives with few resources, other things fall into place, and you gain access to more resources.

What conditions are needed to bring that professional community to focus on an issue?

You need someone, or some group, to take the responsibility to do just that. Get people together—which is energizing in and of itself—and then ask the question: What do we want to do for kids? It's keeping goal-focussed, and facilitating the processes. Sort of greasing the wheels to help those things happen.

From the principal's position, can you cite specific restructuring efforts that improve instruction?

From my perspective, the biggest thing we've done is throw out all the old curriculum guides. We are teaching in depth, trying to help kids understand and see connectedness among curriculum. That makes a big difference.

The time structure makes a big difference pedagogically. When you have 70 minutes with 11, 12, 13, 14 year old kids, you have to change the way you teach. If you are teaching for 40 minutes, if that bell rings, you say, "Oh I'll cut it there." It's possible to lecture for 40 minutes by force of will, but you can't really get into any projects or labs, because that takes time. When you provide that time, old forms of instruction don't work; it facilitates new forms of instruction. So you force changes in instruction by changing the structures.

What supports do teachers need for authentic instruction?

I think you start with a vision and goals, and then support people to get there. You need all parts of the community to join in that process of setting the vision, and ask: What is the best we can imagine for kids in this community?

When you get that vision, and develop consensus around it, you ask: What kinds of things are we now going to begin to do to get there? And then support that. As an administrator there is never enough time. So you say, "What kinds of activities are we going to do to help us to move in that kind of direction?" And then if something isn't going to help us move in that direction, then you just can't do it. You just say, "No, I'm sorry."

When you talk about in-depth learning, throwing out the curriculum guides, how do you know it is happening in every class?

One, I'm in and out of classes a lot. I give people lots of feedback. It's very rare that I do formal observations.

The other thing is just taking away all the barriers. I don't think anybody in our building has any concern about state guidelines. My job is to facilitate learning in this community, and I'll get rid of any outside pressure that takes away from what we think best meets the needs of our kids. I'll take all the heat.

And how do you keep moving in the direction you envision?

Through keeping that vision in front of people. I hand it out constantly, talk about it constantly, keep referring back to it in everything I write. Every time we get groups of people together I'll hand it out again. Talk to parents about it. Talk to kids about it. And keep asking the question: Is this going to help us move in that direction?

Any other supports?

You provide an atmosphere where it is okay to be a risk-taker. Most teachers want to do a good job because they have a passion for what they are doing. A principal has to make sure nobody is slapped on the wrist if they are trying something new. You have to set up an atmosphere where messing up, having things not as good for a while is fine, to be expected, supported, and celebrated. And what happens is that things turn out better than you thought.

The other is—and it's kind of connected—rewarding people who are trying new things either verbally or positive notes.

Then, just encouraging a thoughtful environment. That is helping us become a learning community where we engage each other in new ideas. And that is the norm and not the exception.

What accountability is built into this school?

Primarily because we have an open system of choice, there's a kind of an overriding accountability system. For teacher accountability, we have students choose classes. They choose who they study from and when. If nobody wants your class then you are doing something wrong. About 75% of our students get their first choices, because we don't have any, or very few, loser classes.

The other piece is that if we were doing awful on standardized test scores —I am opposed to those, but I think they are a marker—then we would have a problem. Our kids happen to score very highly.

When we went to a program of math three days a week, some parents just freaked. "My child is never going to learn math! They're never going to college!" So we said we'd check it out. Our first two years—and we stopped after that—we went further in the curriculum than ever before, and standardized test scores went up 4% the first year, 5% the second year. That took the wind out of their sails.

Do you have a message to policymakers in this issue report?

I think we've veered far too much in this country towards top-down administration. I think we get too tied up in education into the "you've-got-to-do-it-this-way" sort of thing. We are at a point where we need to break out of those old structures. If you take a risk and it's wrong, say "Oh I made a mistake, this isn't working, but we tried." Rather than building in hoops before you can take the risk, because people will say: Why do it?

Of course, you need staff development and, on the front end, you have to be research-based. You've got to have people educated to a point where that is a given.

Can you furnish an example when you provided knowledge and the group came up with a decision you wanted all along?

Well, tracking, is a good example. Personally I am very much opposed to tracking in schools. I think it is racist, sexist, demeaning to people. So a moral piece comes into play. It's not research-based, and not good academics. When I came here there was tracking. I would ask the kids where they were and the first kind of thing they would say is, "I'm a level 13." So I started inundating people with research and information about tracking, and I talked about it. Eventually people decided, "Well this isn't very good."

I am a real strong believer in process. Too often in education we implement change without getting everybody on board. So changes are not lasting. Anybody can implement a change that lasts for two or three years by

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CENTER MISSION

The Center on Organization and Restructuring of Schools studies how organizational features of schools can be changed to increase the intellectual and social competence of students. The five-year program of research focuses on restructuring in four areas: the experiences of students in school; the professional life of teachers; the governance, management and leadership of schools; and the coordination of community resources to better serve educationally disadvantaged students.

Through syntheses of previous research, analyses of existing data, and new empirical studies of education reform, the Center focuses on six critical issues for elementary, middle and high schools: How can schooling nurture authentic forms of student achievement? How can schooling enhance educational equity? How can decentralization and local empowerment be constructively developed? How can schools be transformed into communities of learning? How can change be approached through thoughtful dialogue and support rather than coercion and regulation? How can the focus on student outcomes be shaped to serve these five principles?

CENTER PUBLICATIONS

In the fall and spring of each year, the Center publishes a newsletter, ***Issues in Restructuring Schools***, which offers analyses of substantive issues. In addition, three ***Briefs*** targeted to special audiences will be offered yearly, and our ***1993 Bibliography on School Restructuring*** currently available, will be updated each year. Occasional papers will be available at cost. To be placed on the mailing list, please contact: Karen Prager, Dissemination Coordinator, Center on Organization and Restructuring of Schools, University of Wisconsin, 1025 W. Johnson Street, Madison, WI 53706. Telephone: (608) 263-7575.

force of will. But if change is to be systemic and meaningful then it takes everybody to be involved. That does not mean I sit back and wait; that's the facilitator piece. If you are a leader, you have to help people reach agreements and make sure things follow through.

Every teacher has to be on a committee. Do you think it divides teachers' energy to have to be on a school improvement committee as well as work on curriculum for their classroom?

No, I think that's part of the job, part of the new roles and relationships for teachers. They have to become more of a facilitator, more involved in leadership positions. Now when you spread leadership among everybody, you create a much higher degree of ownership and involvement. People begin to see that system-wide changes effect what happens in the classroom.

People in our building work very, very hard. But there is a positive reward that I think, overall, is much more valuable than a little bit of more free time. And I think produces less stress in the long run.

As the only school in Oregon to win the competitive "2020 Grant" for four years, you've had $1,000 per teacher, per year to help chart your school improvement course. How did that money affect instruction?

Essentially it's gone for four different goals, all called Connections. "Connections with the Curriculum" provided time to develop an integrated curriculum. "Time to make Connections" looked at time in different ways. Our new block schedule provided release time for teachers. "Connections with Community" looked at teacher as facilitator, new relationships for teachers with the community, and parent involvement in decision making. It also provided our whole service-learning segment which involves community agencies. "Connections with Technology" integrates technology with everything else we're doing. We're moving in that direction, but we're not where we should be.

How do you build a community of inquiry among students?

By allowing students freedom throughout the school in many ways. Too many times we resort to a power play, laying things on kids and telling them, "You Gotta!" That sets a climate. It builds a different climate to say, "We trust you."

The second thing is helping teachers be free enough not to know all the answers, and to empower kids to begin to develop their own ideas, to be in charge of some of their learning. It moves the teacher into a facilitator role. And it's real, real tough to have the freedom to let that happen.

How do middle school students figure into school improvement?

Formally, informally. I spend a lot of time just talking to the kids. One, I am out in the halls a lot. Two, I take kids to lunch every week, 8-10 kids. I have different advisory groups. If there is any chance I can get I'll listen to kids to have a good sense of what is going on. I think some of that relationship-building with kids helps us facilitate what needs to happen. And the community knows that I listen to kids.

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